Air Division

Emissions Test Protocol
And
Test Report Requirements

May 18, 2018

Introduction

The purpose of this document is to provide guidance for test protocols and reporting stack tests under the jurisdiction of the Alabama Department of Environmental Management (ADEM). This document does not supersede established regulations, but provides guidance where the regulations may not be clear or do not address issues that commonly occur. "EPA Methods" in this document refers to test methods found in Appendix A of 40 CFR Part 51, Part 60, Part 61 and Part 63 or any other method for which EPA approval has been granted for its use. Facility Environmental personnel and testing consultants should use this document as a guide for submitting test protocols and test reports to the ADEM. Failure to follow these guidelines may result in testing delays and/or test report approval delays.

General Information

All data gathered by the test team that is relevant to the stack test (with the exception of data recorded directly by analyzers) will be recorded in non-erasable ink and signed and dated by the person(s) gathering the data. Changes to data sheets can be made by marking out the erroneous information with a single line and initialing the change. The use of "white-out" is not acceptable to make corrections. If computers are utilized to store and record test data without the benefit of a separate chart recorder, a printed or electronic copy of the data for the run observed will be given to the ADEM observer.

If there is a valid reason that all test runs cannot be performed in a single day, the remaining test runs must be performed within seven calendar days of the initiation of the test.

When a test run is determined to be invalid after the test or when a third run cannot be completed due to circumstances beyond the test team's control, the average of two runs may be accepted upon approval by the Chief of Air Division, Chemical Branch or Energy Branch, except for sources that fall under 40 CFR Part 63 regulations which must include 3 runs. The pollutant run average must include 3 consecutive valid test runs. If a run is deemed invalid, the data must be included in the test report along with an explanation for why the run was deemed invalid.

Pretest Protocol Submission

All stack tests conducted to demonstrate compliance with EPA or ADEM regulations, must have a written protocol submitted to Air Division's Chemical Branch or Energy Branch at least 15 business days before the start of the test, unless specified otherwise in the applicable regulation. Protocols for test methods that require audit samples from an EPA certified provider should be submitted at least 30 calendar days before the scheduled test date. The Chemical or Energy Branch permit writer will review the protocol to ensure its applicability to the regulations. The Air Division's Emissions Measurement Section (EMS) will review the protocol to ensure the viability of the testing methodology. All deviations from EPA Methods and/or regulations or special circumstances related to the source must be approved by the EMS and Chemical Branch or Energy Branch permit writer: and when necessary, the EPA. Allowed deviations are not automatically approved for future tests. For sources regulated under 40 CFR Part 63 regulations, major method modifications must be approved by the EPA. When a protocol has been approved, it must be followed in the field. Deviations from EPA Methods and/or regulations that occur during testing that were not described in the protocol and approved prior to the test will be reviewed in the field by the EMS or Chemical Branch or Energy Branch personnel that are present and again in the office when results are submitted to determine if the results will be accepted as valid. A

pretest meeting may be held at the request of the facility or this office. The necessity for such a meeting and required attendance will be determined on a case-by-case basis. The test protocol must contain the following:

1. The name, location, and facility number of the facility.
2. A description of the source(s) to be tested, the permit number(s) associated with each source, and a description of the processes to be tested including the feed rate, operating parameters used to control or influence the operations, and the rated capacity.
3. The date(s) of the test(s).
4. The pollutant(s) being tested, the EPA test method(s) to be used, length of runs and a complete description of the sampling train to be used including the type of probe lining, type of media filter, probe cleaning method, solvent used for sample recovery, instrument spans, sample analysis procedures and any other relevant information.
5. A detailed description of any proposed modifications to the EPA test method(s) and prior approval documentation if applicable.
6. Applicable regulations and pollutant emissions limits.
7. The name, telephone number and e-mail address of the testing firm and contact.
8. If audits are required, there must be a statement indicating that audits will be ordered from one of the approved audit providers and will be available for inspection on-site.

For State Implementation Plan (SIP) sources subject to ADEM regulations but not EPA regulations, if the permit provisos or ADEM Admin. Code div. 335-3 regulations do not specify stack test details, testing will adhere to the most applicable EPA regulations and test methods as closely as possible.

Test protocols that are deemed to have insufficient information for approval by the EMS staff, must be resubmitted with all requested revisions. This process may result in a delay of testing until an acceptable protocol is received, reviewed and approved.

Test Report Submittals

The test report is due at the office of the Air Division within 30 calendar days of completion of the source test, unless otherwise specified in the applicable regulation or permit. **The test report shall be in unbound hardcopy form and must include all data outlined in the "Test Report Format" section below.** Areas to be given special attention are:

1. The emission rate is to be presented in terms of the standard applicable to the source being tested.
2. Complete documentation of process input must be included with correctness validation by responsible plant personnel.
3. A drawing of the source to be tested, to include the diameter of the stack and the upstream and downstream distances to disturbances.
4. The summary for the report must include a statement of the compliance status of the source.
5. Any deviations to the testing methodology, either in sampling or analysis, along with the reason for the change.

A complete set of sample calculations for one run shall be included in the test report. Calculations should be performed using the List of Equations included in this document. All

calculations should be performed retaining one decimal figure more than the acquired data. **Calculated results should not be rounded until after all calculations are final.**

Raw Data / Field Data

Copies of the **original raw field data and all laboratory data sheets** must be included in the test report. Data must be certified by the person responsible for its generation. A chain of custody form shall be included in the report documenting the handling of samples. The report must indicate if the samples were collected and analyzed by a single individual.

Include all relevant calibration documentation for the dry gas meter, pitot tube coefficient, thermocouples, magnehelic gauges, electronic flow measurement devices, nozzle diameter measurements, instrument calibrations, chromatograms and audit results. If an Orsat or Fyrite is used, documentation showing the standardization checks of the reagents and operator (as described in sections 11.4 and 7.1 of EPA Method 3) must be available on- site during testing. **The reagents must be standardized at least once every three stack tests in which they were used**. Gas cylinders used in EPA Method 3A must be certified using EPA Protocol and have copies of their certification sheets included in the report. EPA Method 3A calibration, drift, and bias data must also be included.

Any correspondence between the Air Division and the testing firm concerning procedures, or between the Air Division and the source pertaining to specified operating conditions during the test period, should be included. **Any test performed for engineering or compliance purposes must be reported to the Air Division regardless of compliance status indicated by the results. This includes all test runs whether valid or not.**

In addition to the above requirements, the reporting requirements in all applicable subparts in 40 CFR Parts 51, 60, 61, 63 or 75 must be met.

Below is an example report format; other report formats are acceptable if all the information listed below is included in the report.

TEST REPORT FORMAT

I. Introduction
   1. Report Certification by Responsible Party
   2. Statement of purpose of test and compliance status
   3. Personnel involved (consultants, plant personnel & observers, if present)
   4. Location and date
   5. Type of process tested and control method (including complete description of control devices)
   6. Type of pollutants to be tested
   7. Other background and pertinent information
   8. Special circumstances encountered during testing

II. Summary of Flow Parameters and Emission Rates
   1. Tabular & narrative presentation of test results
      Tabular to include the following:
      a. Sampling period (time of day)

b Stack gas temperature (°F)
c. Moisture content (% volume)
d. Stack gas velocity (fps)
e. Volumetric flow rate (SDCFM) at 68 °F, 29.92 in Hg
f. Pollutant mass rate (lb/hr)
g. Pollutant concentration (grains/SDCF)
h. Pollutant concentration adjusted for diluent gas (if applicable)
i. Average process weight rate (tons/hr)
j. Allowable emissions in proper units
k. % isokinetic (if applicable)

2. Statement of the significance of results

III. Description of Installation and Process Operation

1. Flow diagram
2. Type and quantity of fuel and/or process raw materials used during test (validated by responsible plant personnel)
3. Detailed description of method used to determine heat input or process weight
4. Description of operating conditions during test with discussion of any changes in operation for the purpose of testing
5. Relationship between results and any unusual operating conditions

IV. Sampling and Analytical Procedures

1. Description of sampling train (with diagram)
2. Description of any modification to specified equipment and /or methods
3. Dimensional sketch showing sampling ports in relation to breaching and to upstream and Downstream disturbances with a block diagram showing sampling points

V. Results

1. Parameter sheets
2. Complete calculations from at least one run of test that is being reported
3. All Raw field data (validated by team leader)
4. Laboratory report (validated by analyst)
5. Laboratory audit results
6. Calibration, bias, and drift data
7. Any related reports
8. Nomenclature and equations used
9. Equipment Calibration Data
10. Chain of custody sheets
11. Copies of EPA Protocol gas cylinder certification sheets.
12. QSTI and AETB certifications
13. VE certifications
14. Source operation/production data